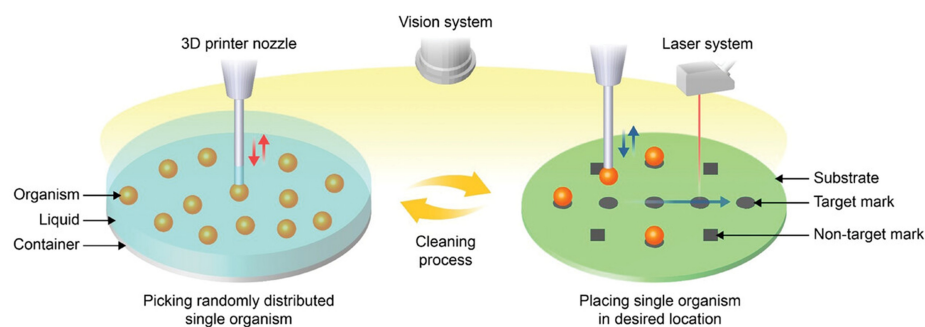




## 3D printing of organisms

A 3D printing system with multiple nozzles to automatically pick-and-place single and multiple living organisms in desired 3D locations.



**IP Status:** US Patent Pending; Application No. US 2023-0025400 A1

### Applications

- Cryopreservation
- Bioimaging
- Tissue engineering
- Organism-integrated devices
- Distributed information gathering

### Technology Overview

The ability to manipulate and position organisms without compromising their integrity is essential for a variety of fields including cryopreservation, creating cybernetic organisms and bioimaging. Researchers at the University of Minnesota have developed the first system with adaptive methodologies that can manage complex tasks, including real-time organism tracking and target space identification, with the objective of placing organisms via an automated system. These methods could replace the manual handling of organisms, reducing inconsistencies and contamination risks, while increasing the throughput.

### Phase of Development

**TRL: 3-4**

The 3D printing technology has been demonstrated for high throughput cryopreservation of zebrafish and shrimp, sorting of live zebrafish embryos, and fabrication of spherical and planar displays via the printing of dinoflagellates

### Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

**Technology ID**

2022-015

### Category

All Technologies  
Engineering & Physical  
Sciences/Instrumentation,  
Sensors & Controls  
Engineering & Physical  
Sciences/Robotics  
Life Sciences/Biomaterials  
Cryopreservation

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## Press Releases

[Phys.org](#) 08/20/2024

## Researchers

- [Michael McAlpine, PhD](#) Professor, Mechanical Engineering
- [John Bischof, PhD](#) Professor, Mechanical Engineering

## References

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